

Amendments to the Claims

The following listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A purified nucleic acid construct comprising:
a gene cassette encoding at least one modified protein selected from the group consisting of: a modified LuxA comprising an amino acid sequence in its carboxy terminus that specifically binds to a tail-specific protease, and
a modified LuxB comprising an amino acid sequence in its carboxy terminus that specifically binds to a protein associated with a ubiquitin-proteasome pathway, said modified protein comprising at least one modification in its amino acid sequence relative to the sequence of a wild type form of said protein, wherein said modification comprises the addition of a peptide sequence to the protein, and
wherein the half-life of the modified LuxA protein when expressed in a bacterial cell is shorter than the half-life of the wild-type form of the LuxA protein when expressed in the bacterial cell, and
wherein the half-life of the modified LuxB protein when expressed in a yeast cell is shorter than the half-life of the wild-type form of the LuxB protein when expressed in the yeast cell.

Claim 2 (currently amended): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes both the modified LuxA and the modified LuxB,

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~~wherein the modified LuxA comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxA, and wherein the modified LuxB comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxB.~~

Claim 3 (previously presented): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes all proteins necessary for production of bioluminescence without addition of an exogenous substrate.

Claim 4 (currently amended): The purified nucleic acid construct of claim 1 [[3]], wherein the gene cassette encodes LuxC, LuxD, and LuxE.

Claim 5 (canceled).

Claim 6 (previously presented): The purified nucleic acid construct of claim 1, wherein the modified protein is derived from a bacteria selected from the group consisting of: *Photobacterium luminescens*, *Vibrio fischeri* and *Vibrio harveyi*.

Claims 7 and 8 (canceled).

Claim 9 (currently amended): The purified nucleic acid construct of claim 1 [[8]], wherein the modified protein is the modified LuxA and the amino acid sequence in its carboxy terminus that specifically binds to a tail-specific protease peptide sequence comprises SEQ ID NO:8.

Claim 10 (currently amended): The purified nucleic acid construct of claim 1 [[8]], wherein the modified protein is the modified LuxA and the amino acid sequence in its carboxy terminus that specifically binds to a tail-specific protease peptide-sequence comprises SEQ ID NO:9.

Claim 11 (currently amended): The purified nucleic acid construct of claim 1 [[8]], wherein the modified protein is the modified LuxA and the amino acid sequence in its carboxy terminus that specifically binds to a tail-specific protease peptide-sequence comprises SEQ ID NO:10.

Claims 12-14 (canceled).

Claim 15 (currently amended): The purified nucleic acid construct of claim 1 [[7]], wherein the modified protein is the modified LuxB and said protein associated with a proteolytic ubiquitin-proteasome pathway mediates degradation of ~~said~~ the modified protein LuxB via a ubiquitin-proteasome pathway.

Claim 16 (previously presented): The purified nucleic acid construct of claim 15, wherein said protein associated with a ubiquitin-proteasome pathway is SCF(GRR1).

Claim 17 (currently amended): The purified nucleic acid construct of claim 15, wherein the peptide amino acid sequence that specifically binds to a protein associated

with a ubiquitin-proteasome pathway ~~of said modified protein~~ comprises a PEST-rich sequence.

Claim 18 (previously presented): The purified nucleic acid construct of claim 17, wherein said PEST-rich sequence comprises a PEST-rich carboxy terminal sequence of G1 cyclin Cln2.

Claim 19 (previously presented): A vector comprising the purified nucleic acid construct of claim 1.

Claim 20 (previously presented): The vector of claim 19, wherein said vector is a plasmid.

Claim 21 (previously presented): The vector of claim 19, wherein said vector is an expression vector suitable for expressing a nucleic acid incorporated in the vector in a cell type selected from the group consisting of: a bacterial cell, a yeast cell and a mammalian cell.

Claim 22 (previously presented): A prokaryotic cell comprising the vector of claim 19.

Claim 23 (previously presented): The prokaryotic cell of claim 22, wherein said cell is a bacterial cell.

Claim 24 (canceled).

Claim 25 (previously presented): A eukaryotic cell comprising the vector of claim 19.

Claim 26 (previously presented): The eukaryotic cell of claim 25, wherein said cell is a yeast cell or a mammalian cell.

Claims 27-29 (canceled).